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Loop-slot resonator of 3-centimeter range for spin-echo spectrometer and laser spectrometer

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Abstract

The described structure had two features: of the availability of Gordon controlled coupling between waveguide transmission line and one-loop-one-slot resonator placed in non-resonance screen; the frequency tuning by dielectric rod. To estimate resonator the semiempirical formula was applied determining the dependence of resonance frequency on geometrical dimensions of one-loop resonator (in the limits of 10%-error). The controlled coupling with waveguide transmission line was in resonator placed in non-resonance screen and the frequency tuning was provided. The resonator tests showed that the electron spin echo optimum signal was reached at microwave power being less by 16 DB than that in the case of using standard H102 rectangular resonator. At that, the echo amplitude increased by 23 DB.